Supplementary documentation
Proline Promag 53
Data transmission via EtherNet/IP

Connection to an EtherNet/IP network and integration into a control system

Using the supplementary documentation
This supplementary document should only be used in conjunction with a Proline Promag 53 EtherNet/IP transmitter.

Associated device documentation
This document is an integral part of Operating Instructions BA117D (Proline Promag 53 Modbus RS485). It acts as a supplement to BA117D by providing information on using the transmitter in an EtherNet/IP network.

Endress+Hauser
People for Process Automation

Table of contents

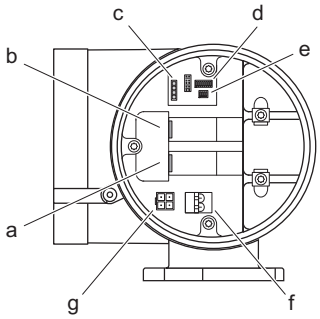
System design

Measuring device

The measuring device has a dual Ethernet module to connect it to an EtherNet/IP network and for connecting to a Webserver integrated in the measuring device. It uses the EtherNet/IP communication protocol (Ethernet Industrial Protocol) in accordance with the ODVA specification.

Transmitters with a dual Ethernet module are marked "EtherNet/IP" on the nameplate.

Dual Ethernet module

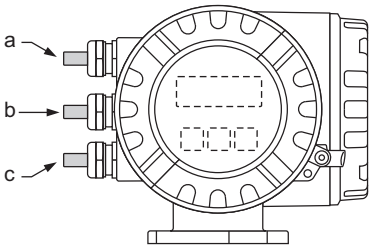


Structure of the dual Ethernet module

a Ethernet port 1 for EtherNet/IP network or Webserver
b Ethernet port 2 for EtherNet/IP network or Webserver
c Status light emitting diodes (LED)
d DIP switches for hardware addressing
e DIP switches to reset software addressing
f Power supply connection
g Port for service interface FXA193 (FieldCare)

Connection versions

There are primarily three ways to connect the measuring device.



Transmitter cable entries

	Connection version 1	Connection version 2	Connection version 3
a	Ethernet via cable entry/cable gland	Ethernet via fieldbus connector	Ethernet via fieldbus connector
b	Dummy plug	Dummy plug	Ethernet via fieldbus connector
c	Power supply via cable entry/cable gland	Power supply via cable entry/cable gland	Power supply via cable entry/cable gland

Connection version 1

If the network cable is routed directly into the measuring device through the cable entry, an RJ45 plug must be connected to the network cable.

Note!
An RJ45 plug does **not** form part of the delivery.

Caution!
If this connection version is used, attention must be paid to the grounding and shielding of the measuring device → 🖹 8.

Connection version 2 and 3

If the measuring device is connected using one or two fieldbus connectors, the device is supplied with one or two 4-pin M12 ports (in accordance with IEC 61076-2-10). You require M12 connectors to connect the device (e.g. Binder Ethernet Connector, Series 825, Article No: 99-3729-810-04).

Note!
M12 connectors do **not** form part of the delivery.

Connecting to the EtherNet/IP network and accessing the Webserver

The measuring device has a dual Ethernet module with two Ethernet ports. A connection to the EtherNet/IP network, as well as a connection to the Webserver, can be established through the two Ethernet ports. The ports are assigned using the individual IP address.

The dual Ethernet module has an integrated switch that processes the Ethernet data packets on a "store and forward" basis. It can manage up to 256 MAC addresses in its source address table (SAT).

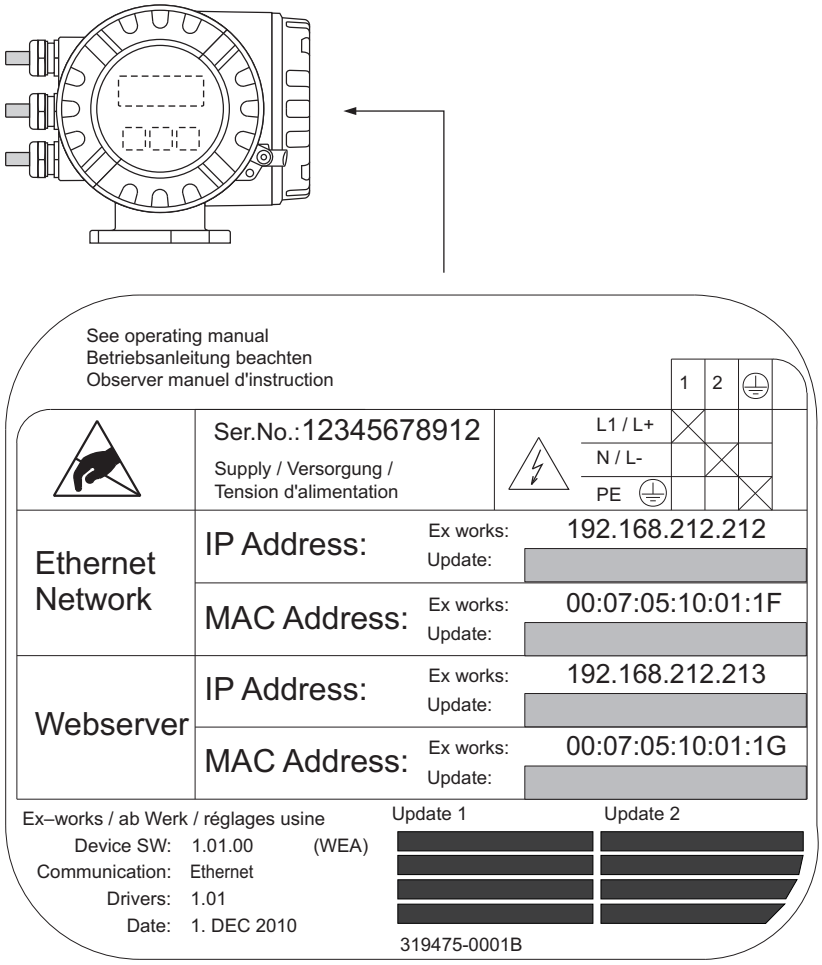
With regard to connection version 3, you can access the Webserver of the measuring device without having to open the device if a connection to the EtherNet/IP network has already been established.

In the case of connection versions 1 and 2, if a connection to the EtherNet/IP network has already been established you can connect to the Webserver by connecting a PC/laptop directly to the dual Ethernet module. The connection compartment of the measuring device must be opened for this purpose, however.

⚠ Warning!
Heed the safety instructions in the Operating Instructions when opening the connection compartment!

Connection label

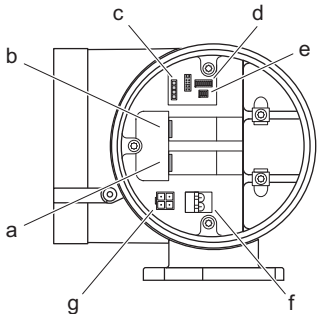
A connection label in the cover of the connection compartment provides information on the default IP addresses and the device-specific MAC addresses. If a new IP address is assigned, this can be documented on the connection label.



Connection label (example)

Dual Ethernet module

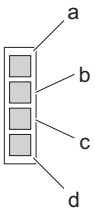
Configuration



Configuration of the dual Ethernet module

- a Ethernet port 1 for EtherNet/IP network or Webserver
- b Ethernet port 2 for EtherNet/IP network or Webserver
- c Status light emitting diodes (LED)
- d DIP switches for hardware addressing
- e DIP switches to reset software addressing
- f Power supply connection
- g Port for service interface FXA193 (FieldCare)

Status light emitting diodes (LED)



Meaning of the individual light emitting diodes

a	LED 1	Is not used	
b	LED 2	Is not used	
c	LED 3	▪ STEADY OFF	The device does not have any IP address or is without power supply.
		▪ FLASHING GREEN	The device has no established connection, but has obtain an IP address.
		▪ STEADY GREEN	The device has at least one established connection (even to the message router)
		▪ FLASHING RED	One or more of the connections in which the device is the target has a time out. This shall be left only if all connections are reestablished or if the device is reset.
d	LED 4	▪ STEADY OFF	The device is without power supply.
		▪ FLASHING GREEN	Either no I/O connection is established or any established I/O connection is in idle mode (1 Hz).
		▪ STEADY GREEN	All established I/O connection are in run mode.

DIP switches for hardware addressing

The IP address of the measuring device can be configured for the EtherNet/IP network using the DIP switches. Addresses in the range from 0 to 254 are permitted (the address 255 is reserved for the broadcast address).

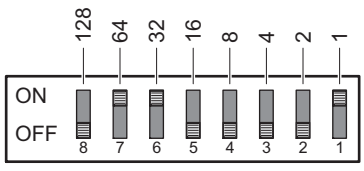
The IP address for software addressing is active when the device leaves the factory (default IP address: 192.168.212.212), i.e. all the DIP switches for hardware addressing are set to OFF.

Addressing and enabling hardware addressing

1. Set the desired IP address using the corresponding DIP switches. This configures the last three digits (last octet) of the IP address = 192.168.212.**XXX** (see example).

   Note!
   The first nine decimal digits (first three octets) can only be configured via software addressing → 10.

2. After 10 seconds the hardware addressing with the defined IP address is activated.



Hardware addressing (example for address 97)

DIP switch		Value:
128	OFF	0
64	ON	64
32	ON	32
16	OFF	0
8	OFF	0
4	OFF	0
2	OFF	0
1	ON	1
		97 = 192.168.212.**97**

Disabling hardware addressing and activating software addressing

Switch all the DIP switches for hardware addressing to OFF.

DIP switches to reset software addressing

The set IP addresses can be reset with the DIP switch to reset software addressing (see configuration of the dual Ethernet module → 🖹 5). This resets the measuring device to the following default IP addresses: EtherNet/IP Network (192.168.212.212), WebServer (192.168.212.213).

Resetting the IP addresses set via software addressing

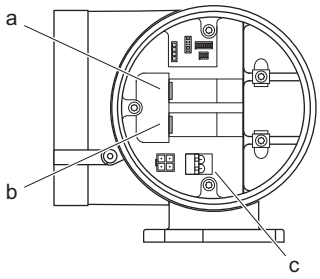
Prerequisite:
- Software addressing is enabled (see DIP switch for hardware addressing → 🖹 9)
- The measuring device is switched on (power supply switched on)

Procedure:
1. DIP switch (No. 1) from OFF → ON
2. DIP switch (No. 1) from ON → OFF

Result: IP addresses of the measuring device: 192.168.212.212 (EtherNet/IP Network)
192.168.212.213 (WebServer)

Connection values

Dual Ethernet module connection



Dual Ethernet module connection

a Ethernet port 1 for EtherNet/IP network or Webserver
b Ethernet port 2 for EtherNet/IP network or Webserver
c Power supply connection

Note!
Due to the internal switch, both ports may only be connected to the same network when a Ring or Line topology is used.

Power supply

85 to 260 V AC, 20 to 55 V AC,16 to 62 V DC

- Terminal No. 1: L1 for AC, L+ for DC
- Terminal No. 2: N for AC, L- for DC

Ethernet port

The measuring device has a dual Ethernet module to connect it to an EtherNet/IP network and for connecting to a Webserver integrated in the measuring device. It uses the EtherNet/IP communication protocol (Ethernet Industrial Protocol) in accordance with the ODVA specification.

A connection to the EtherNet/IP network, as well as a connection to the Webserver, can be established through the two Ethernet ports. The ports are assigned using the individual IP address.

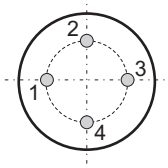
The measuring device has the following default addresses when delivered:

	EtherNet/IP network	Webserver
IP address	192.168.212.212	192.168.212.213
Netmask	255.255.255.0	255.255.255.0
Gateway	192.168.212.212	192.168.212.213

Note!
A connection label in the cover of the connection compartment provides information on the default IP addresses and the device-specific MAC addresses. If a new IP address is assigned, this can be documented on the connection label → 🖹 4.

M12 fieldbus connector

4-pole M12 port (in accordance with IEC 61076-2-10)



Assignment:
- Pin No. 1 and 3: signal channel 1
- Pin No. 2 and 4: signal channel 2

Note!
You require M12 connectors to connect the device (e.g. Binder Ethernet Connector, Series 825, Article No: 09-3732-700-04). M12 connectors do **not** form part of the delivery.

Technical data for M12 fieldbus connector

General characteristic values	
Number of contacts	4
Locking system	Screws M12 x 1
Wire gage in mm^2	Max. 0.75 (screw); max. 0.25 (solder)
Wire gage in AWG	Max. 20 (screw); max. 24 (solder)
Shell protection	IP 67
Upper temperature	+85 °C (+185 °F)
Lower temperature	−40 °C (−40 °F)
Mechanical operation	> 50 mating cycles
Electrical characteristics	
Rated voltage	250 V
Rated impulse voltage	2500 V
Pollution degree	3 (flange plug-in connections in connection area 2)
Overvoltage category	II
Material group	III
Test voltage	2950 V
Rated current (40 °C)	4 A
Contact resistance	≤ 3 mΩ (gold)
Insulation resistance	≥ 10^{10} Ω
Material	
Pin contact	CuZn (brass)
Socket contact	CuZn (brass)
Cable contact plating	Au (shielded)
Flange contact plating	Au (gold)
Male insert	PA 66 (UL 94 HB)
Female insert	PA 66 (UL 94 HB)
Metal housing cable connector	CuZn nickel-plated, zinc die-casting, nickel-plated
Socket	Zinc die-casting, nickel-plated
Thread ring	Zinc die-casting, nickel-plated

RJ45 connector

If the network cable is routed directly into the measuring device through the cable entry, an RJ45 plug must be connected to the network cable.

Note!
An RJ45 plug does **not** form part of the delivery.

Cable entries

- Cable entry M20 × 1.5 (8 to 12 mm)
- Threads for cable entries, ½" NPT, G ½"

Grounding and shielding

If the EtherNet/IP cable is routed directly into the measuring device through the cable entry (a fieldbus connector is not used), correct grounding and shielding must be ensured. This is required to guarantee electromagnetic compatibility (EMC). The following grounding and shielding options are available:

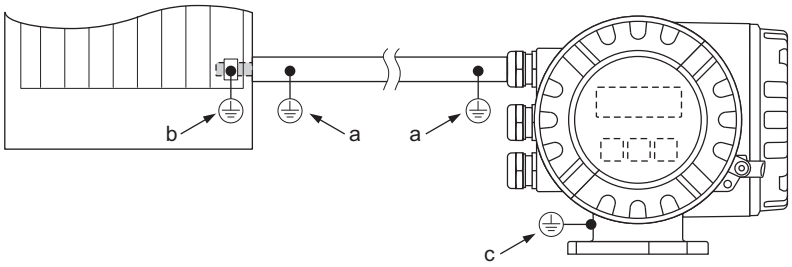
EMC PG cable gland

Users can ensure correct grounding of the shield at the cable entry by using a standard armored thread (PG) cable gland that meets EMC requirements.

Conduit cabling

If conduit cabling is used, both the conduit and the Ethernet cable (large area shield contact) have to be grounded at both ends.

- The shield of the Ethernet cable must be grounded at the entrance to the cabinet.
- The conduit must be electrically connected to the transmitter housing and the cabinet.



Ground connections necessary if using a conduit

a Ground connections on the conduit
b Ground connection at the entrance to the cabinet
c Ground connection at the measuring device

Webserver

PC/laptop settings

The IP address of the Webserver (default IP address: 192.168.212.213) must be configured on the PC/ laptop to establish a connection to the Webserver of the measuring device.

The Webserver can be launched using any standard Web browser.

Note!
To establish a connection, the option for using the proxy server for LAN must be disabled in the settings for the Web browser.

Configuring the IP address

Hardware addressing

The IP address of the measuring device can be configured for the EtherNet/IP network via the DIP switches for hardware addressing (see configuration of dual Ethernet module → 🖹 5). Addresses in the range from 0 to 254 are permitted (the address 255 is reserved for the broadcast address).

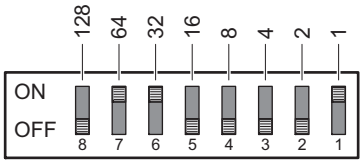
The IP address for software addressing is active when the device leaves the factory (default IP address: 192.168.212.212), i.e. all the DIP switches for hardware addressing are set to OFF.

Addressing and enabling hardware addressing

1. Set the desired IP address using the corresponding DIP switches. This configures the last three digits (last octet) of the IP address = 192.168.212.**XXX** (see example).

   ✎ Note!
   The first nine decimal digits (first three octets) can only be configured via software addressing → 🖹 10.

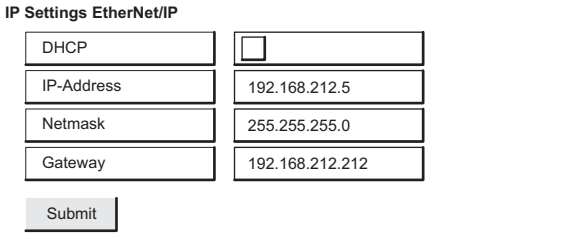
2. After 10 seconds the hardware addressing with the defined IP address is activated.



Hardware addressing (example for address 97)

DIP switch			Status	= Value configured (IP address):
8	=	128	OFF	0
7	=	64	ON	64
6	=	32	ON	32
5	=	16	OFF	0
4	=	8	OFF	0
3	=	4	OFF	0
2	=	2	OFF	0
1	=	1	ON	1
				97 = 192.168.212.**97**

✎ Note!
The IP address set via the hardware addressing function can be visualized using the Webserver. A warning appears in the "Network Configuration" menu indicating that hardware addressing is active and which IP address has been set. Example of hardware addressing with IP address 5:



Disabling hardware addressing and activating software addressing

Switch all the DIP switches for hardware addressing to OFF.

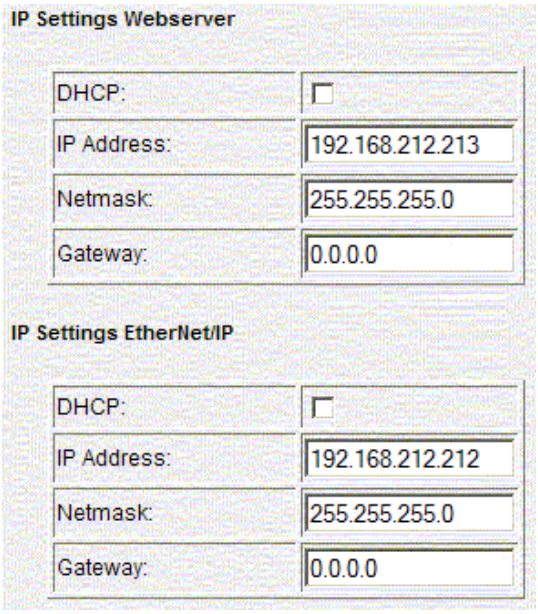
Software addressing

Software addressing is performed in the "Network Configuration" menu of the Webserver. Both the IP address for the Webserver and the IP address for the EtherNet/IP network can be configured.

The measuring device has the following default addresses when delivered:

	EtherNet/IP network	Webserver
IP address	192.168.212.212	192.168.212.213
Netmask	255.255.255.0	255.255.255.0
Gateway	192.168.212.212	192.168.212.213

Addresses in the range from 0 to 254 are permitted (the address 255 is reserved for the broadcast address).



Software addressing via the "Network Configuration" menu

Note!
- Software addressing is disabled if hardware addressing is activated → 9.
- When changing from software addressing to hardware addressing, the first nine digits (first three octets) that were configured using software addressing, remain unchanged.
- A reset of the software addressing to the default setting is possible → 6.

DHCP client

If a DHCP server is used within the EtherNet/IP network, the IP address, gateway and subnet mask are set automatically when the DHCP client function is enabled. The MAC address of the measuring device is used for identification purposes (see also the connection label on → 4).

The DHCP client function is enabled in the "Network Configuration" menu.

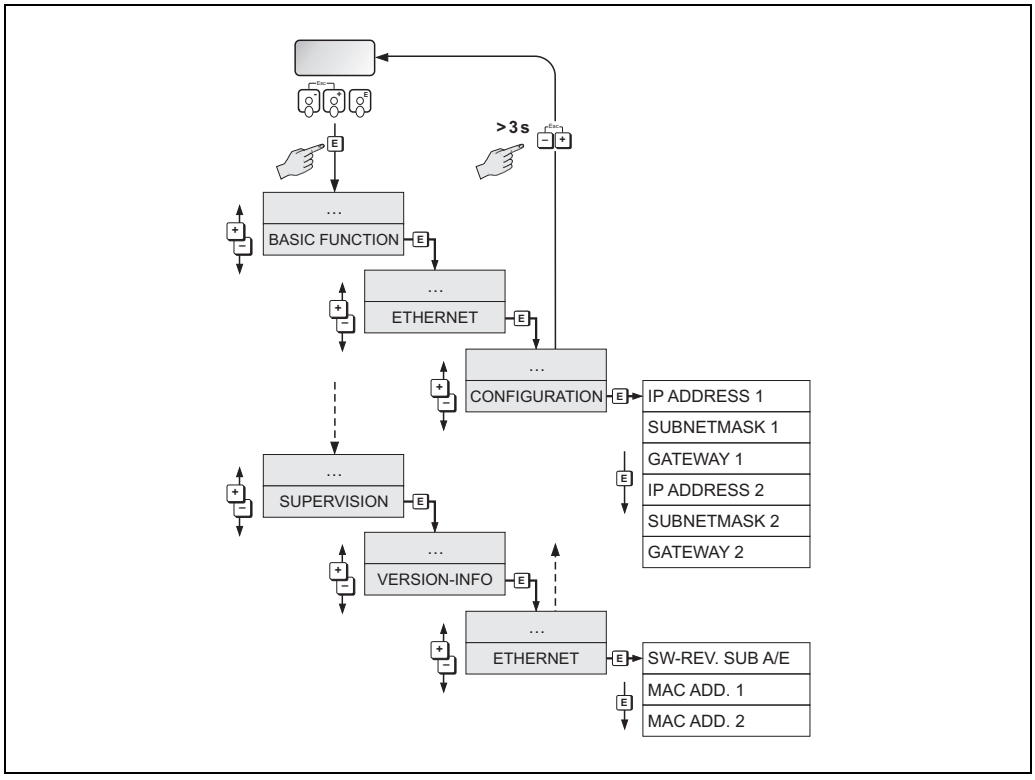
The measuring device has the following DHCP default settings when delivered:

	EtherNet/IP network	Webserver
DHCP	Yes (enabled)	No (disabled)

Note!
The DHCP client function is disabled if hardware addressing is enabled → 9.

Local operation

The address configuration for the measuring device is displayed via the local display.



Displaying the address configuration via the local display

The individual addressing parameters are assigned as follows:

Parameter	Assignment
IP ADDRESS 1	EtherNet/IP network
SUBNETMASK 1	
GATEWAY 1	
MAC ADD. 1	
IP ADDRESS 2	Webserver
SUBNETMASK 2	
GATEWAY 2	
MAC ADD. 2	

Webserver menus

Overview of the Webserver menus

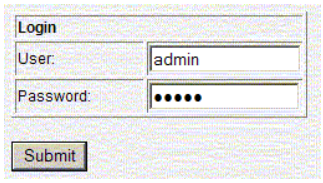
Promag 53 - Ethernet - Info					
Info	User Management		Parameter Up-/Download	Ethernet Diagnostic	Endress+Hau-ser
Overview	Network Configuration	Data Map	Device Config	Firmware Update	Login

The Webserver has the following menus:

Info	Displaying the serial number of the device, EtherNet HW and communication status → 13
User Management	For assigning access authorization to the Webserver → 12
Parameter Up-/Download	Loading resp. saving of the device parameter → 17
Ethernet Diagnostics	Displaying the Ethernet Diagnostics values → 16
Endress+Hauser	Link to the Endress+Hauser homepage
Overview	Information on the measuring device, the status and displaying measured values → 13
Network Configuration	Configuration of the network → 14
Data Map	Displaying the input and output values for EtherNet/IP data transmission → 15
Device Config	Configuration of the parameters of the measuring device → 17
Firmware Update	Update to the firmware of the dual Ethernet module → 17
Login	For enabling access to the Webserver → 12

Login

Enabling access to the Webserver.



Webserver login

Configuration when delivered:
- User: admin
- Password: admin

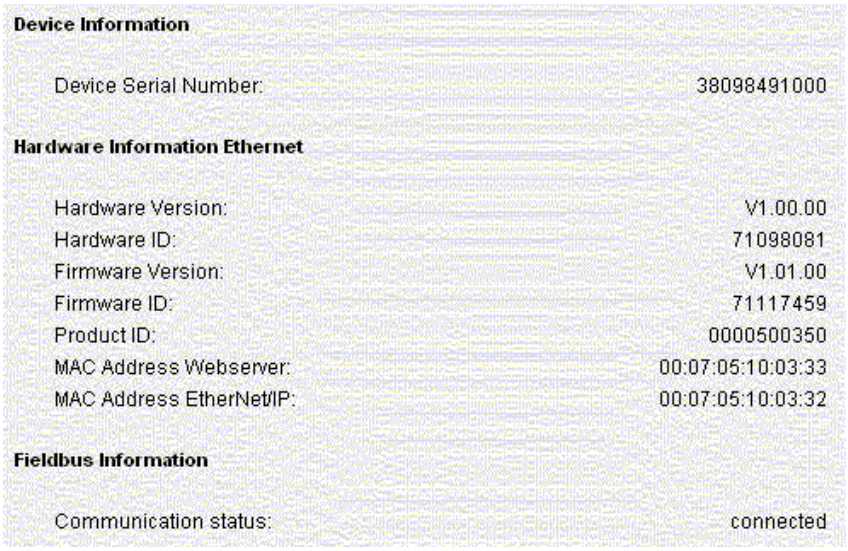
Note!
We recommend that you change the password for the administrator after configuring the user rights (see "User Management" Webserver menu → 12).

User Management

Configuration of the access authorization for individual users or user groups (user name) and the related password. Select the individual categories (Firmware Update, Network Config etc.) to enable these menus for the users or user groups.

Info

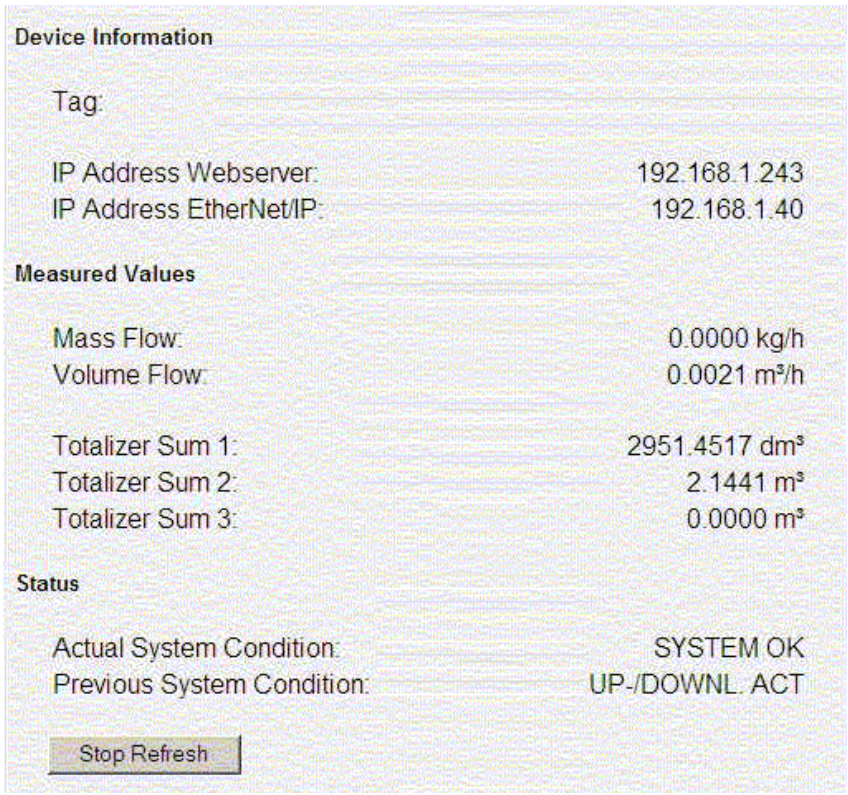
Displays the serial number of the measuring device, information on the Ethernet hardware and of the current communication status:



Info menu

Overview

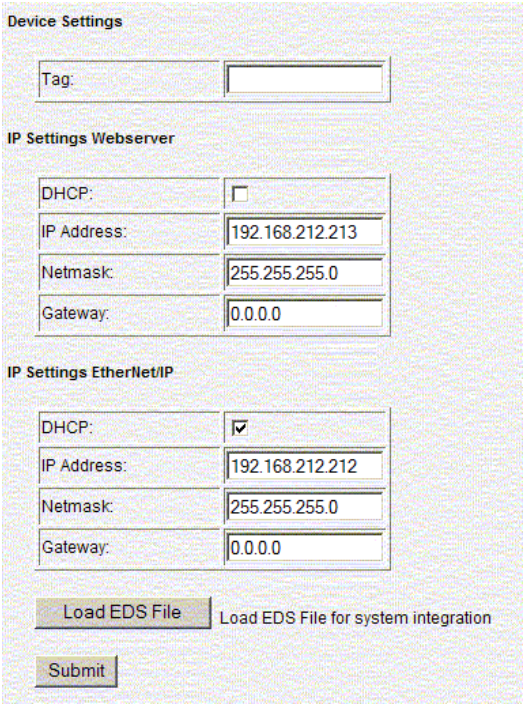
Displays information on the measuring device, the measured values and the current system condition of the measuring device:



Overview menu

Network Configuration

- Assigning a tag name to the measuring device.
- Activating the DHCP client function for the EtherNet/IP network and the Webserver
- Address configuration: IP settings for the EtherNet/IP network and the Webserver
- Uploading the device-specific EDS (Electronic Data Sheet) file for integrating the measuring device into a network



Network Configuration menu

Tag

A tag name can be entered for the measuring device or the measuring point. The tag also appears in the "Overview" menu. Possible entries: max. 32-digit text (A-Z, 0-9, +,-, punctuation marks).

DHCP client

The IP address, gateway and netmask are set automatically if the DHCP client function is enabled for the Web server or the EtherNet/IP network. The MAC address of the measuring device is used for identification purposes (see also the connection label on → 4). When the device leaves the factory, the DHCP client function is enabled for the EtherNet/IP network and disabled for the Webserver.

IP settings

The IP address, the netmask and the gateway can be entered for the Webserver and the EtherNet/IP network via the IP settings. The measuring device has the following default addresses when delivered:

	EtherNet/IP network	Webserver
IP address	192.168.212.212	192.168.212.213
Netmask	255.255.255.0	255.255.255.0
Gateway	192.168.212.212	192.168.212.213

Submit

Clicking the "Submit" button sends all the settings and entries of the "Network Configuration" menu to the measuring device.

Load EDS File

The EDS file that is needed to integrate the measuring device into an EtherNet/IP network can be downloaded from the measuring device to the PC/laptop using the "Load EDS File" button.

Data Map

Displays the input and output values for EtherNet/IP data transmission and related information:
- Position number
- Description (1)
- Register number
- Current input and output values
- Description (2)
- Data type
- Description (3)

Subdivision of the Data Map:
- Pos. 1 to 10 = input values (sent by the measuring device to the controller)
- Pos. 11 to 16 = output values (sent by the controller to the measuring device)

Pos.	Description	Register	Value	Description	Data Type	Description	
1		2007	-0.0007		Input Float		Edit
2		2009	0.0000		Input Float		Edit
3		0	-nan		Input Float		Edit
4		0	-nan		Input Float		Edit
5		0	-nan		Input Float		Edit
6		0	-nan		Input Float		Edit
7		2610	267.9037		Input Float		Edit
8		2810	739.5825		Input Float		Edit
9		3010	-471.6787		Input Float		Edit
10		6859	1		Input Integer		Edit
11		2608	0.0000		Output Float		Edit
12		2808	0.0000		Output Float		Edit
13		3008	0.0000		Output Float		Edit
14		0	0.0000		Output Float		Edit
15		0	0.0000		Output Float		Edit
16		0	0.0000		Output Float		Edit

Data Map menu

Input and output values

The sequence and number of input and output values for EtherNet/IP data transmission are displayed via the Data Map (configuration of the Data Map via Webserver → 18). The Data Map is configured as follows when the measuring device leaves the factory:

Pos.	Parameter	Register	Input/output values
1	Mass flow	2007	Input values The input values are sent by the measuring device to the controller.
2	Volume flow	2009	
3	–	0	
4	–	0	
5	–	0	
6	–	0	
7	Totalizer 1	2610	
8	Totalizer 2	2810	
9	Totalizer 3	3010	
10	Actual system condition	6859	
11	Reset totalizer 1	2608	Output values The output values are sent by the controller to the measuring device.
12	Reset totalizer 2	2808	
13	Reset totalizer 3	3008	
14	–	0	
15	–	0	
16	–	0	

Ethernet Diagnostics

Displaying the Ethernet Diagnostics values.

Ethernet Port 1

Link Status:	Inactive
Media Speed:	Unknown
Duplex:	Unknown
Autonegotiate Status:	Autonegotiation in progress

Ethernet Port 2

Link Status:	Active
Media Speed:	100 Mbps
Duplex:	Full Duplex
Autonegotiate Status:	Successfully negotiated speed and duplex

CIP Connection Statistics

Active Explicit Msg Connections:	0
Explicit Msg Connections Supported:	20
Total Explicit Msg Connections Observed:	0
Active I/O Connections:	1
I/O Connections Supported:	10
Total I/O Connections Observed:	1
Conn Open Requests:	1
Open Request Errors:	0
Conn Close Requests:	0
Close Request Errors:	0
Conn Timeouts:	0

TCP Connection Statistics

Active TCP Connections:	1
TCP Connections Supported:	10
Total TCP Connections Observed:	1

CIP Explicit Messaging Statistics

Connected Messages Sent:	0
Connected Messages Received:	0
Unconnected Messages Sent:	1
Unconnected Messages Received:	1

CIP I/O Messaging Statistics

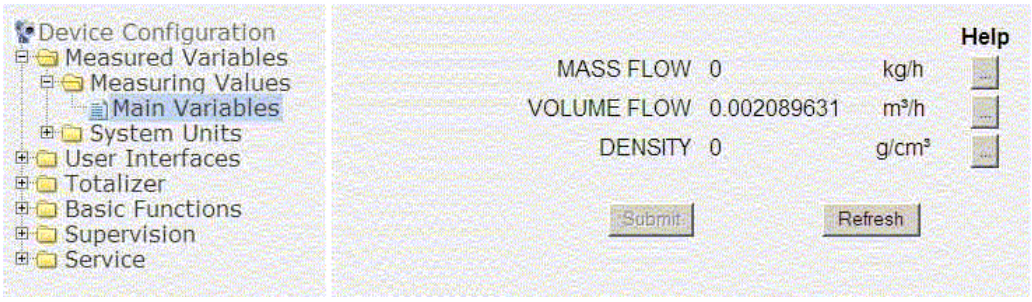
	Packets/Second	Total
Messages Sent:	50	3159426
Messages Received:	50	3153091
Messages Inhibited:	0	0
Messages Rejected:	0	0
Messages Missed:	0	0
Sum (Sent + Recv + Inhib + Rejc):	100	6312517

I/O Packet Capacity:	500
Theoretical reserve I/O Capacity:	400
Actual reserve I/O Capacity:	400

EtherNet Diagnostics menu

Device Configuration

- Configuration of the parameters of the measuring device
- Show any system or process errors on the display
- Direct access to individual parameters of the measuring device



"Device Configuration" menu

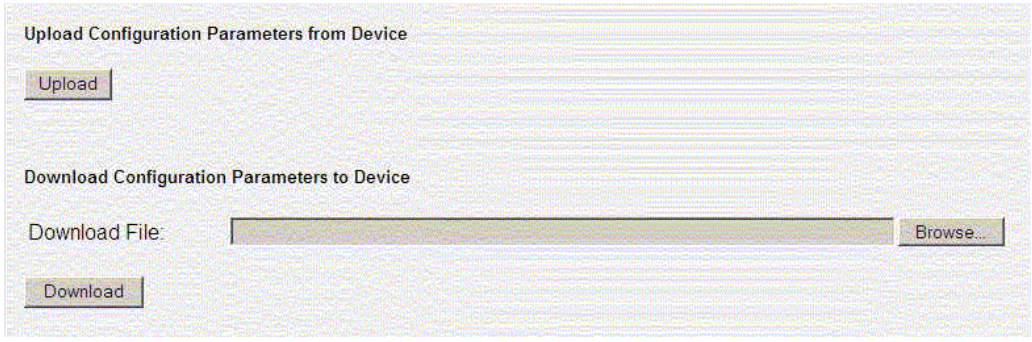
Firmware Update

The Ethernet module's firmware can be updated via this menu. The latest firmware file can be obtained from www.endress.com.

Note!
The device software (amplifier, I/O module) is updated via the FXA193 service interface using the Flow Device FXA193/291 DTM and the FieldCare plant asset management tool.

Parameter Up-/Download

Use this function to save the configuration parameter from the device or upload the configuration parameter to the device.



"Up-/Download" menu

Technical data

The device supported the full duplex mode. Cyclic time: 3 ms (RPI Range)

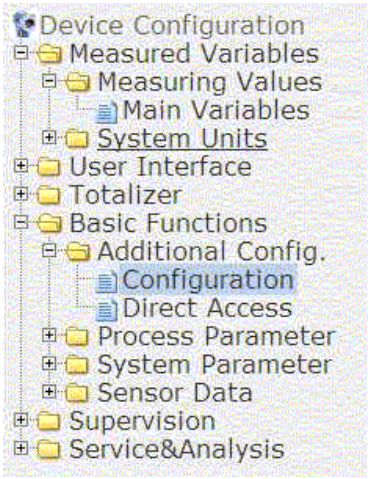
Configuring the Data Map via the Webserver

The input and output values for EtherNet/IP data transmission and related information are displayed in the Data Map (Data Map → 15). The order and number of the input and output values can be adapted for EtherNet/IP data transmission. Write access to the related parameters has to be enabled to configure the Data Map (Login → 12).

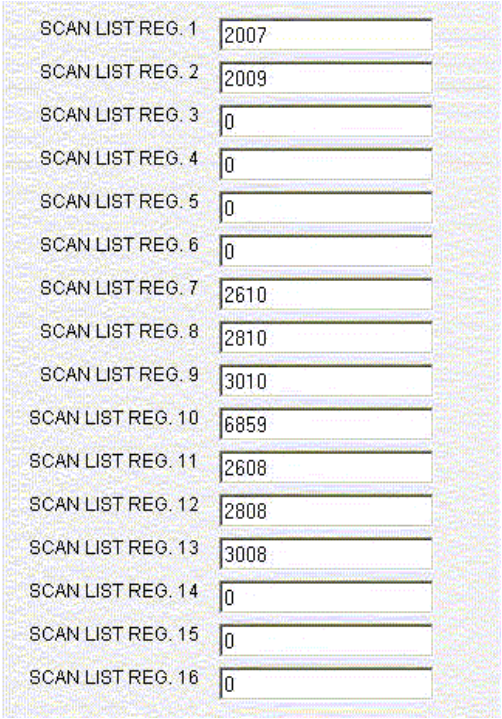
1. Open the **"Device Config"** menu in the Webserver.

Promag 53 - Ethernet - Info					
Info	User Management		Parameter Up-/Download	Ethernet Diagnostic	Endress+Hauser
Overview	Network Configuration	Data Map	Device Config	Firmware Update	Login

2. Open **"Basic functions"** → **"Additional Config."** → **"Configuration"** in the **"Device Config"** menu.



3. Scroll down until you come to the **SCAN LIST REG. 1** parameter.



The parameters SCAN LIST REG. 1 to 16 stand for the particular row (position) 1-16 in the Data Map. The Data Map is configured as follows when the measuring device leaves the factory:

Parameter in Additional Settings, related register = position (row) in the Data Map			**Value configuration when delivered** (an input or output value is assigned to the position in question)			
Parameter	**Register**	**Pos. in Data Map**	**Value**	**=**	**Register for**	**Input/output value**
SCAN LIST REG. 1	5001	Row 1	2007	=	Mass flow	Input values*
SCAN LIST REG. 2	5002	Row 2	2009	=	Volume flow	
SCAN LIST REG. 3	5003	Row 3	–			
SCAN LIST REG. 4	5004	Row 4	–			
SCAN LIST REG. 5	5005	Row 5	–			
SCAN LIST REG. 6	5006	Row 6	–			
SCAN LIST REG. 7	5007	Row 7	2610	=	Totalizer 1	
SCAN LIST REG. 8	5008	Row 8	2810	=	Totalizer 2	
SCAN LIST REG. 9	5009	Row 9	3010	=	Totalizer 3	
SCAN LIST REG. 10	5010	Row 10	6859	=	Actual system condition	
SCAN LIST REG. 11	5011	Row 11	2608	=	Reset totalizer 1	Output values*
SCAN LIST REG. 12	5012	Row 12	2808	=	Reset totalizer 2	
SCAN LIST REG. 13	5013	Row 13	3008	=	Reset totalizer 3	
SCAN LIST REG. 14	5015	Row 14	0	=	–	
SCAN LIST REG. 15	5016	Row 15	0	=	–	
SCAN LIST REG. 16	5017	Row 16	0	=	–	

* Input and output value from the point of view of the higher-order controller

4. The mass flow appears in the first row (Pos. 1) in the Data Map, i.e. this input value is the first value to be sent to the higher-order controller via EtherNet/IP data transmission.
   The system can continue to describe the individual input or output value in the Data Map → 15

Pos.	Description	Register	Value	Description	Data Type	Description	
1	Massflow	2007	3547.8340		Input Float	Massflow	Edit

Note!
The Data Map can be configured via the "Device Config" menu (by entering the Register and Value → 17).

Integrating into a control system

Electronic data sheet file (EDS)

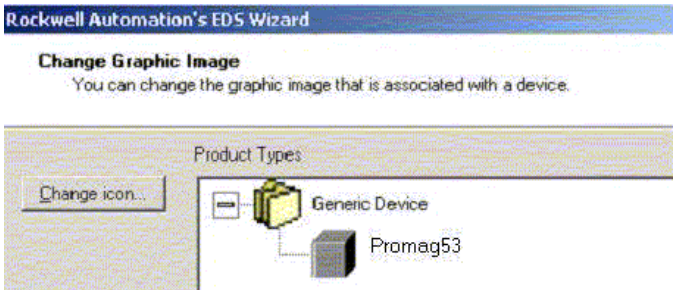
The EDS file required for the installation can be loaded directly from the device via the Webserver ("Network Configuration" menu, Load EDS File → 14). Alternatively, the file can also be downloaded from the Endress+Hauser Website (www.endress.com).

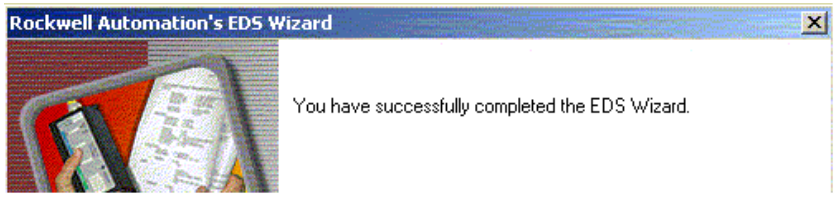
Integration into a Rockwell Automation control system

Integration into the Rockwell Automation control system RSLogix5000.

Installing the electronic data sheet file (EDS)

The file is installed via the "EDS Hardware Installation Tool" in the "RSLinx" menu.



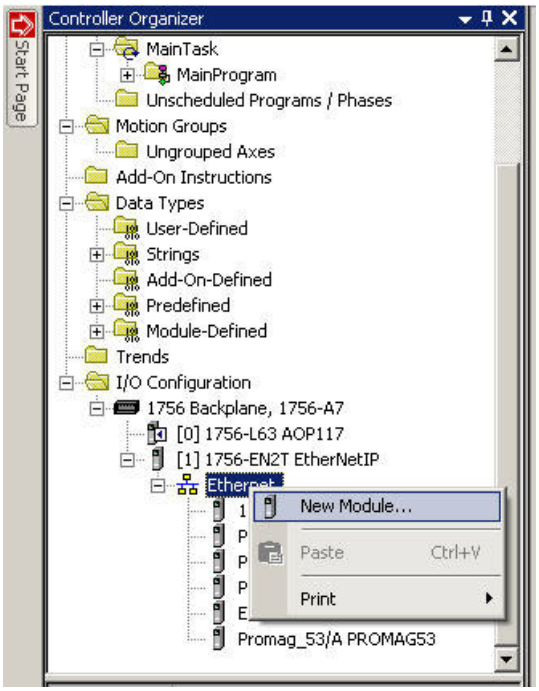


Installation Add On Profile (AOP) incl. EDS

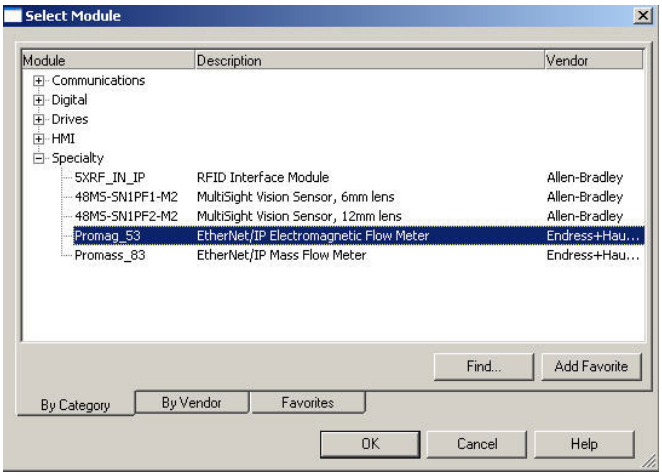
The AOP Level 3 file (incl. EDS file) required for the installation can be loaded directly from the Endress+Hauser Website (www.endress.com).

Implementation in the Rockwell EtherNet/IP architecture

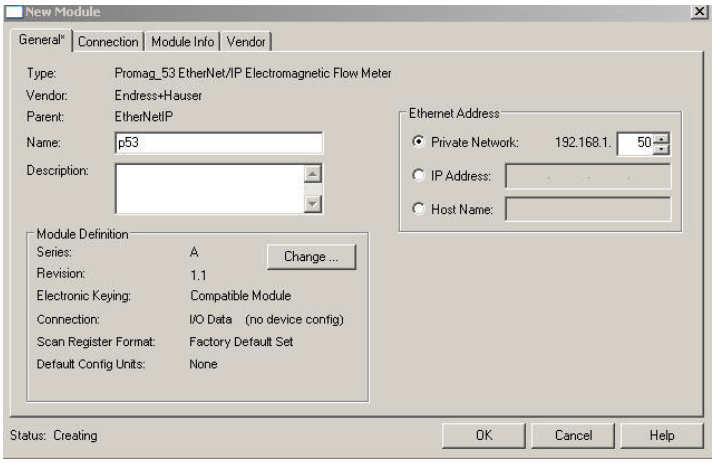
1. Select the Ethernet Network in the "Controller Organizer" under I/O Configuration → EtherNetIP → Ethernet. Click the right mouse button and select "New Module...".



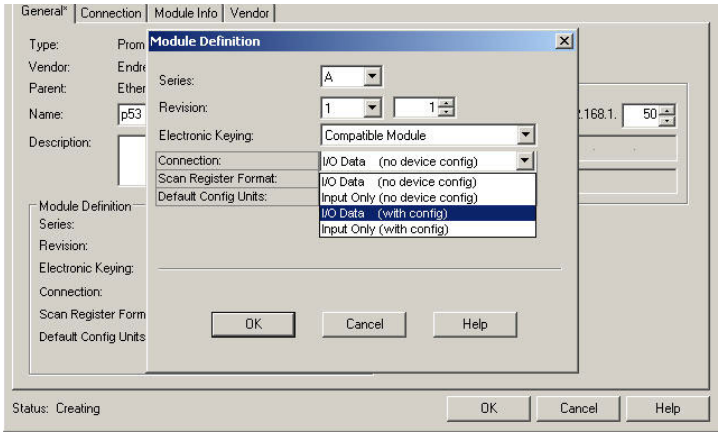
2. Choose the desired device. The window "New Module" will open automatically.



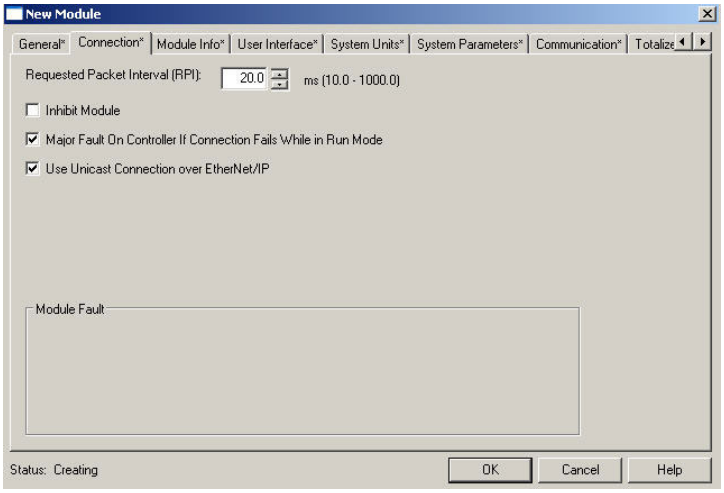
3. Adapt the details for "Name" and "Ethernet Address" in register "General" in the "New Module" window.



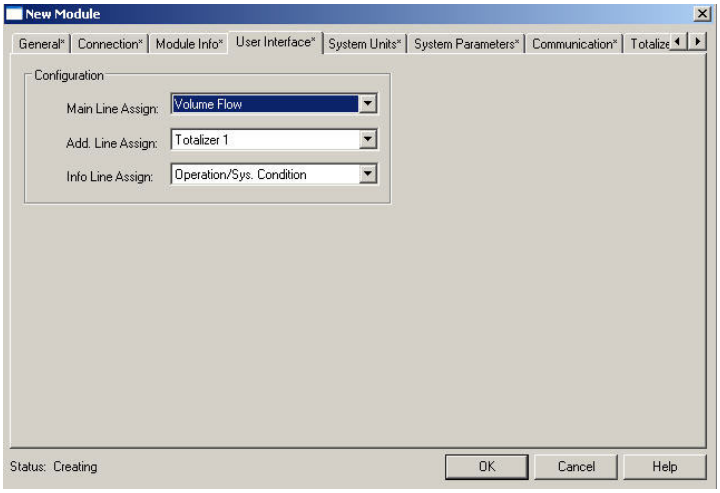
4. Open the "Module Definition" window by using the button "Change":
   - under "Connection" choose the specification "I/O Data (with config)". With this selection the inputs, outputs and also the device configuration will be used.
   - under "Scan register format" choose the specification "Factory Default Set". With this selection the settings as supplied to customer will be used. Alternative the specification "Customer User Set" can be selected, to allow customer specific settings of the measuring value transmissions (Communication → 23, Pt. 9).
   - under "Default Config Units" choose the desired format for the units.



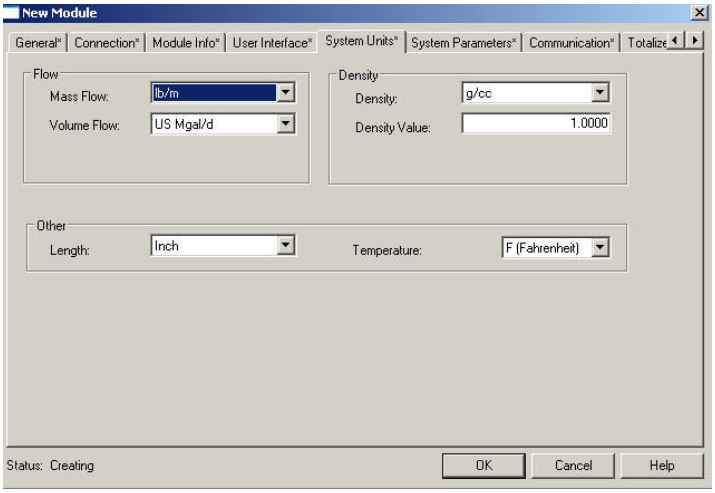
5. Switch to register "Connection" and activate the "Major Fault On If Connection Fails While in Run Mode".



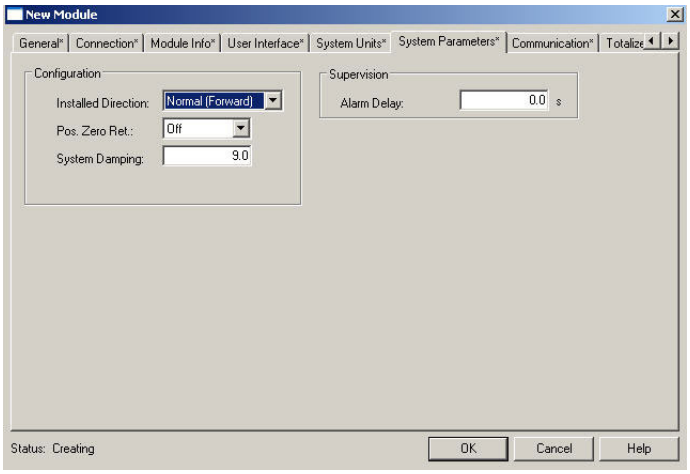
6. Switch to register "User Interface". Examine the settings and change them if necessary.



7. Switch to register "System Units". Examine the settings and change them if necessary.

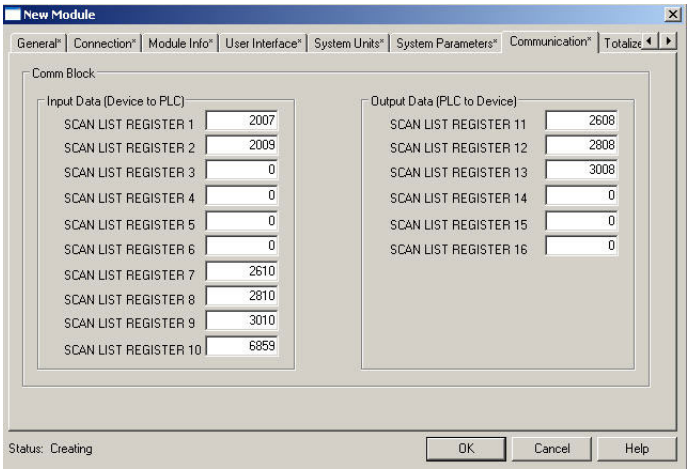


8. Switch to register "System Parameters". Examine the settings and change them if necessary.

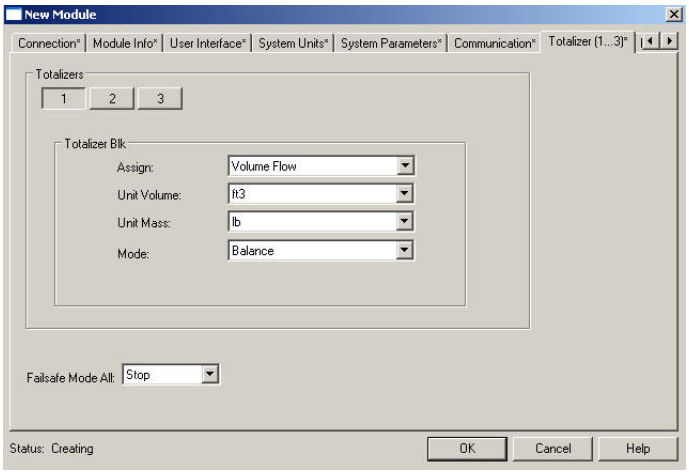


9. Switch to register "Communication". Examine the settings and change them if necessary.

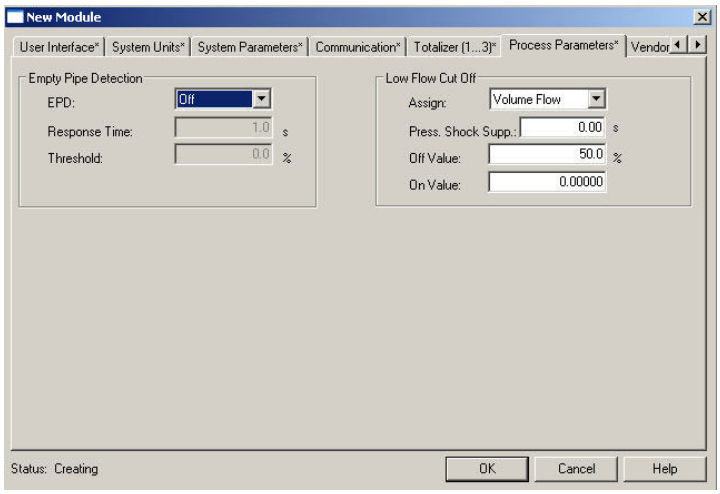
✎ Note!
The register "Communication" is only available, if the specification "Customer User Set" is selected in the "Module Definition" under "Scan register format" → 📄 21, Pt. 4. If the specification "Factory Default Set" is selected, the register "Communication" isn't displayed. However, the settings are readable via WebSever.



10. Switch to register "Totalizer (1...3)". Examine the settings and change them if necessary. Use the button 1, 2 or 3 to select the specific totalizer.

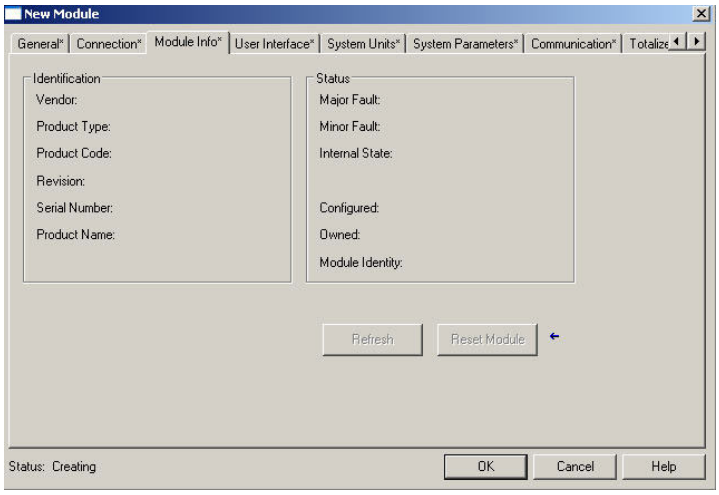


11. Switch to register "Processparameter". Examine the settings and change them if necessary.



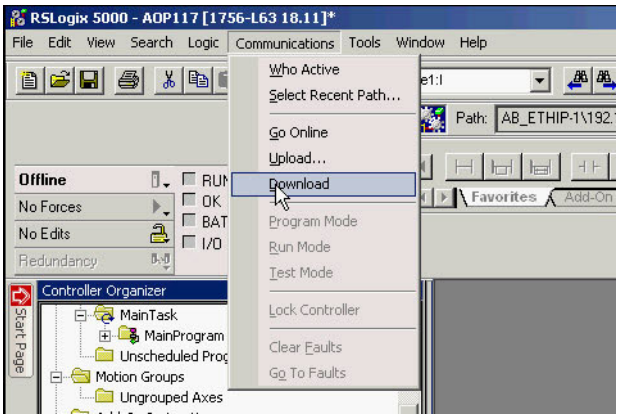
12. Additional information about the device will be displayed in the register "Vendor".

13. At that time, information about the device won't be displayed in register "Module Info". This display occurs not until the download of the settings is executed in online mode.

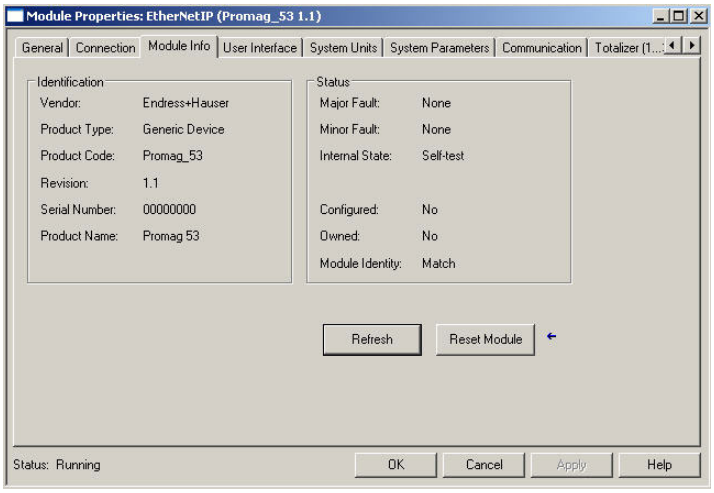


Download the settings

1. Download the settings with the command "Download" under the "Communications" menu.

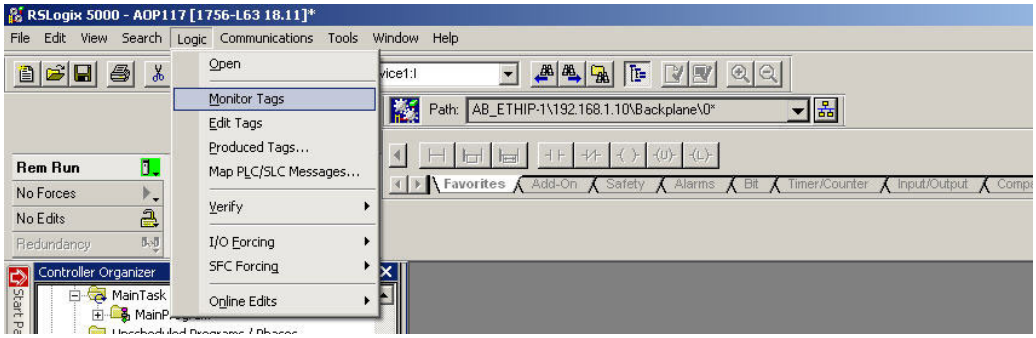


2. Choose the device in the "Controller Organizer" window. Now the information about the device will be shown in the register "Module Info".



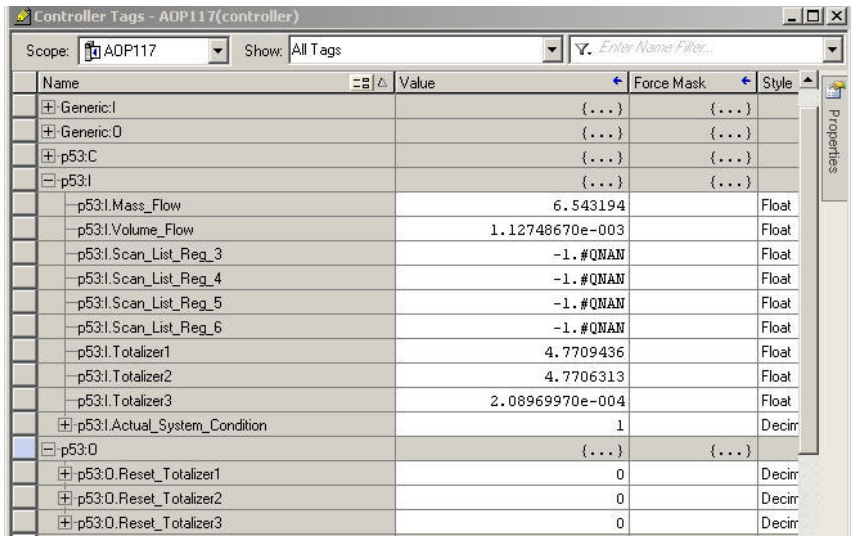
Displaying the measured, input and output values in online mode

Open the "Controller Tags" window with the command "Monitor Tags" under the "Logic" menu.

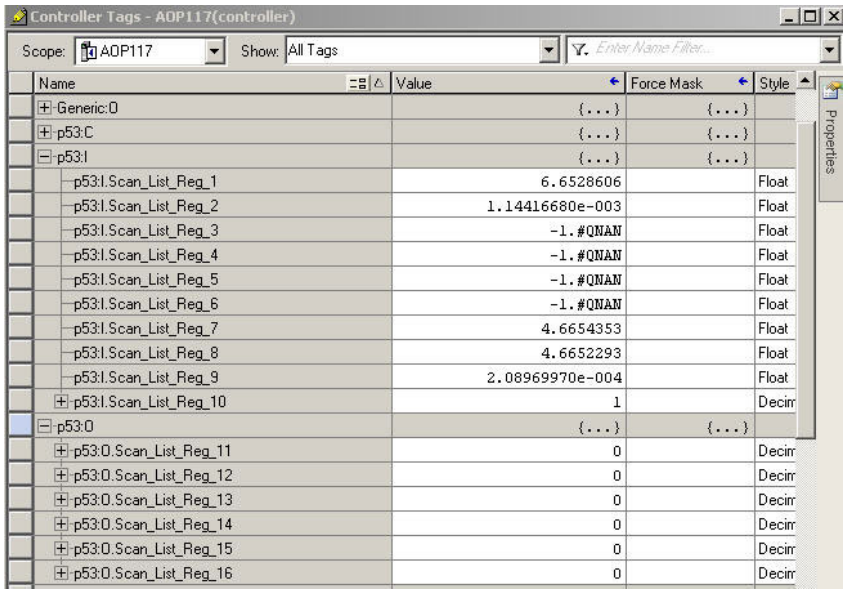


Search for you device in the "Controller Tags" window. Under the name extension:
- "Device name: **C**" the configuration parameters are displayed
- "Device name: **O**" the output values are displayed
- "Device name: **I**" the intput values are displayed

The "Controller Tags" window with setting "Factory Default Set" in the "Module Definition" → 📄 21



The "Controller Tags" window with setting "Customer User Set" in the "Module Definition" → 📄 21



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